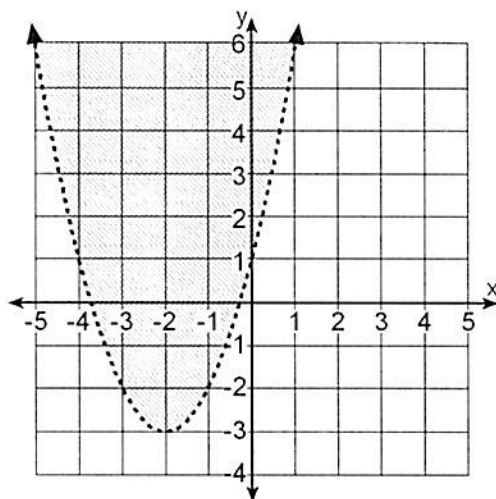
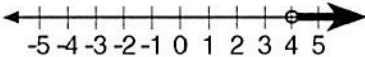
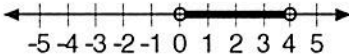
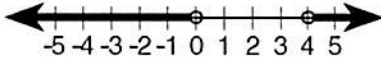
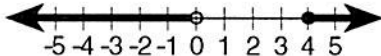


Name: \_\_\_\_\_

- 1) What is the solution set for the inequality  $x^2 - 4x - 5 < 0$ ?  
 A)  $\{x \mid -5 < x < 1\}$       B)  $\{x \mid -1 < x < 5\}$       C)  $\{x \mid x > 5 \text{ or } x < -1\}$       D)  $\{x \mid x > 1 \text{ or } x < -5\}$
- 2) Solve for  $x$ :  $x^2 + 5x \geq 6$
- 3) Solve  $x^2 + 6x + 8 \leq 0$  algebraically and represent the solution set on the real number line.
- 4) The accompanying graph represents a solution to which of the following inequalities?

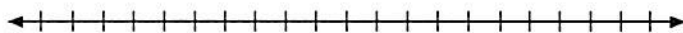


- A)  $y + 3 > (x + 2)^2$       B)  $y + 3 > (x - 2)^2$       C)  $y + 3 < (x - 2)^2$       D)  $y + 3 < (x + 2)^2$
- 5) Which of the following represents the solution set for the inequality  $\frac{x - 4}{x} > 0$ ?
- A) 
- B) 
- C) 
- D) 

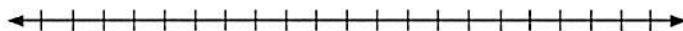
Questions 6 and 7 refer to the following:

Solve the given inequality algebraically and sketch a graph of the solution set on the number line provided.

6)  $\frac{x - 3}{x - 5} > 0$

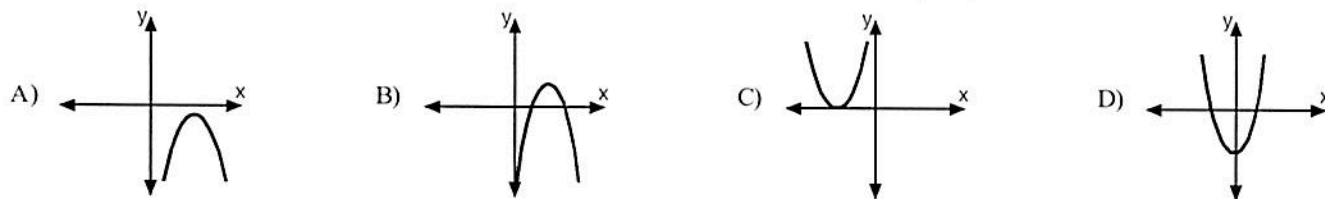


7)  $\frac{3}{x - 4} \geq \frac{2}{x}$



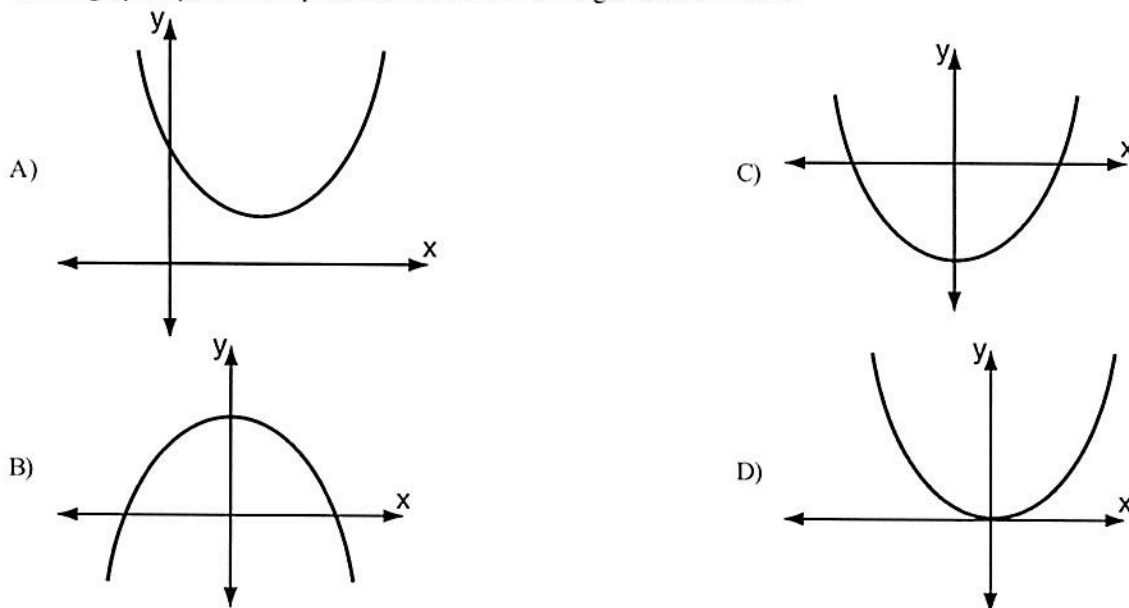
- 8) The roots of the equation  $x^2 + 6x + 11 = 0$  are  
 A) real, rational, and unequal  
 B) real, rational, and equal  
 C) real, irrational, and unequal  
 D) imaginary
- 9) The roots of the equation  $ax^2 + 4x = -2$  are real and equal when  $a$  is equal to  
 A) 1  
 B) 2  
 C) 3  
 D) 4
- 10) For which value of  $k$  will the roots of the equation  $2x^2 + kx + 1 = 0$  be real?  
 A) 1  
 B) 2  
 C) 3  
 D) 0
- 11) Determine the nature of the roots of the quadratic equation  $3y^2 + 5y = 2$ .

- 12) Which graph represents a parabola whose corresponding quadratic equation has imaginary roots?



- 13) Which is a true statement about the graph of the equation  $y = x^2 - 7x - 60$ ?  
 A) It is tangent to the x-axis.  
 B) It intersects the x-axis in two distinct points that have rational coordinates.  
 C) It does not intersect the x-axis.  
 D) It intersects the x-axis in two distinct points that have irrational coordinates.

- 14) Which graph represents a quadratic function with a negative discriminant?





- 26) The expression  $\frac{\frac{a-b}{b}-\frac{b}{a}}{\frac{1}{a}+\frac{1}{b}}$  is equivalent to
- A)  $a + b$                       B)  $a - b$                       C)  $\frac{a-b}{ab}$                       D)  $ab$
- 27) Which of the following expressions would be a step in completing the square of  $3x^2 + 12x + 10 = 0$ ?
- A)  $(x-2)^2 = \frac{22}{3}$                       B)  $(x+2)^2 = \frac{22}{3}$                       C)  $(x+2)^2 = \frac{10}{3}$                       D)  $(x+2)^2 = \frac{2}{3}$
- 28) Which one of the following expressions would be a step in solving  $x^2 - 14x - 12 = 0$  by the process of completing the square?
- A)  $x - 7 = \pm \sqrt{61}$                       B)  $x + 7 = \pm \sqrt{67}$                       C)  $x - 7 = \pm \sqrt{19}$                       D)  $x + 7 = \pm \sqrt{37}$
- 29) What are the roots of the equation  $x^2 + 9x + 12 = 0$ ?
- A)  $\frac{9 \pm \sqrt{33}}{2}$                       B)  $\frac{-9 \pm \sqrt{33}}{2}$                       C)  $\frac{-9 \pm \sqrt{129}}{2}$                       D)  $\frac{9 \pm \sqrt{129}}{2}$
- 30) What is the solution set for the inequality  $x^2 - 3x < 0$ ?
- A)  $\{x \mid 0 < x < 3\}$                       B)  $\{x \mid x < 0\}$                       C)  $\{x \mid x < 0 \text{ or } x > 3\}$                       D)  $\{x \mid x > 3\}$
- 31) What is the solution set of the inequality  $\frac{2x+3}{x} \geq x$ ?
- A)  $\{x \mid -1 \leq x < 0 \text{ or } x \geq 3\}$                       C)  $\{x \mid -1 < x < 0 \text{ or } x > 3\}$   
 B)  $\{x \mid x \leq -1 \text{ or } 0 < x \leq 3\}$                       D)  $\{x \mid x < -1 \text{ or } 0 < x < 3\}$
- 32) Solve:  $\frac{7}{x} - 4 = \frac{-4x}{x+1}$
- A)  $\frac{7}{3}$                       B)  $\frac{3}{7}$                       C)  $-\frac{7}{3}$                       D)  $-\frac{3}{7}$
- 33) What is the solution set for  $|x - 3| > 5$ ?
- A)  $\{x \mid x < 8 \text{ and } x < -2\}$                       C)  $\{x \mid x < 8 \text{ or } x < -2\}$   
 B)  $\{x \mid x > 8 \text{ or } x < -2\}$                       D)  $\{x \mid x < 8 \text{ and } x > -2\}$
- 34) Expressed in simplest form,  $2\sqrt{-50} - 3\sqrt{-8}$  is equivalent to
- A)  $3i\sqrt{2}$                       B)  $16i\sqrt{2}$                       C)  $4i\sqrt{2}$                       D)  $-42$